

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-2 (cancelled).

3 (previously presented). A light falloff determining system comprising:

a polar transformer that converts an image into radial traces;

a falloff fitter that fits said radial traces to a model of falloff to determine a light falloff correction for said image; and

a discontinuity remover that removes discontinuities from said radial traces, thereby producing continuous radial traces, wherein said falloff fitter fits said continuous radial traces to said model of falloff to determine said light falloff correction for said image;

a differentiator that determines an estimate of derivatives of said radial traces;

a derivative adjuster that adjusts said estimate of derivatives and produces adjusted derivatives that are within minimum and maximum derivative bounds; and

an integrator that produces said continuous radial traces from said adjusted derivatives.

4 (currently amended). The system in claim + 3, further comprising an underexposure checker that prevents underexposed images from being processed by said polar transformer.

5 (currently amended). The system in claim + 3, further comprising a falloff mask generator that generates a correction mask for said image based on said light falloff correction.

6 (currently amended). The system in claim 4 3, further comprising a grouper that combines fit values used by said falloff fitter to fit said radial traces to said model.

7 (original). The system in claim 6, further comprising a weighting unit that weights said fit values.

8 (currently amended). The system in claim 4 3, further comprising a flash fire detector that determines whether said image was obtained with a flash depending upon said light falloff amount.

9 (currently amended). The system in claim 4 3, wherein said polar transformer produces said radial traces from a group of images and said falloff fitter determines a single light falloff amount for said group of images.

10-11 (cancelled).

12 (previously presented). An image processing system comprising:

an image collector;

a light falloff correction system comprising a polar transformer that converts an image into radial traces; and a falloff fitter that fits said radial traces to a model of falloff to determine a light falloff correction for said image; and

a discontinuity remover that removes discontinuities from said radial traces, thereby producing continuous radial traces, wherein said falloff fitter fits said continuous radial traces to said model of falloff to determine said light falloff correction for said image;

a differentiator that determines an estimate of derivatives of said radial traces;

a derivative adjuster that adjusts said estimate of derivatives and produces adjusted derivatives that are within minimum and maximum derivative bounds; and

an integrator that produces said continuous radial traces from said adjusted derivatives.

13 (currently amended). The system in claim ~~10~~ 12, further comprising an underexposure checker that prevents underexposed images from being processed by said polar transformer.

14 (currently amended). The system in claim ~~10~~ 12, further comprising a falloff mask generator that generates a correction mask for said image based on said light falloff correction.

15 (currently amended). The system in claim ~~10~~ 12, further comprising a grouper that combines fit values used by said falloff fitter to fit said radial traces to said model.

16 (original). The system in claim 15, further comprising a weighting unit that weights said fit values.

17 (currently amended). The system in claim ~~10~~ 12, further comprising a flash fire detector that determines whether said image was obtained with a flash depending upon said light falloff correction.

18 (currently amended). The system in claim ~~10~~ 12, wherein said polar transformer produces said radial traces from a group of images and said falloff fitter determines a single light falloff correction for said group of images.

19-20 (cancelled).

21 (previously presented). A method of performing light falloff correction of an image, said method comprising:

converting an image into radial traces;

fitting said radial traces to a model of falloff to determine said light falloff correction for said image; and

removing discontinuities from said radial traces, thereby producing continuous radial traces, wherein said fitting comprises fitting said continuous radial traces to said model of falloff to determine said light falloff correction for said image;

estimating derivatives of said radial traces;

adjusting said derivatives to produce adjusted derivatives that are within minimum and maximum derivative bounds; and

integrating said adjusted derivatives to produce said continuous radial traces.

22 (currently amended). The method in claim ~~19~~ 21, further comprising preventing underexposed images from being converted.

23 (currently amended). The method in claim ~~19~~ 21, further comprising generating a correction mask for said image based on said light falloff correction.

24 (currently amended). The method in claim ~~19~~ 21, further comprising combining fit values to fit said radial traces to said model.

25 (original). The method in claim 24, further comprising weighting said fit values.

26 (currently amended). The method as is claim ~~19~~ 21, further comprising applying said light falloff correction to said image.

27 (currently amended). The method as in claim ~~19~~ 21, further comprising detecting a flash fire condition of said image based on an amount of said light falloff correction.

28 (currently amended). The method in claim ~~19~~ 21, wherein said converting is performed on a group of images and said determining produces a single light falloff correction for said group of images.

29 (cancelled).

30 (currently amended). The method in claim ~~29~~ 33, further comprising, before said fitting of said model, processing said digital image using a sigma filter.

31-32 (cancelled).

33 (previously presented). A method of estimating an amount of light falloff in a digital image comprising:

- providing a digital image;
- providing at least one model of light falloff;
- fitting said model of light falloff to said digital image to determine said amount of light falloff in said digital image;
- converting said digital image into radial traces;
- fitting said radial traces to said model of light falloff to determine said amount of light falloff in said digital image;
- removing discontinuities from said radial traces, thereby producing continuous radial traces, wherein said fitting comprises fitting said continuous radial traces to said model of light falloff to determine said amount of light falloff in said digital image;
- estimating derivatives of said radial traces;
- adjusting said derivatives to produce adjusted derivatives that are within minimum and maximum derivative bounds; and
- integrating said adjusted derivatives to produce said continuous radial traces.

34 (currently amended). The method in claim ~~29~~ 33, further comprising preventing underexposed images from being fitted.

35 (currently amended). The method in claim ~~29~~ 33, further comprising generating a correction mask for said digital image based on said amount of light falloff.

36 (currently amended). The method as in claim ~~29~~ 33, further comprising detecting a flash fire condition of said image based on said amount of light falloff in said digital image.

37 (currently amended). The method in claim ~~29~~ 33, wherein said fitting is performed on a group of images and said fitting produces a single amount of light falloff for said group of images.